## MISCELLANEOUS.

72. Proposed by DR. E. D. ROE, JR., Associate Professor of Mathematics, Oberlin College, Oberlin, Ohio.

If $a$, $b$, and $c$ are integers, and

$$\left.\begin{matrix} b,\ c-b,\ c-1 \\ c-a-1 \\ c-a-1 \end{matrix}\right\} >0,$$

$$c-a-b-1\geq 0,$$

prove that the sum of the series,

$$1+\frac{a.b}{1.c}+\frac{a(a+b).b(b+1)}{1.2.c(c+1)}+\frac{a(a+1)(a+2).b(b+1)(b+2)}{1.2.3c(c+1)(c+2)}+\ldots\ldots$$

is equal to

$$\frac{(c-1)\,!\,(c-a-b-1)\,!}{(c-a-1)\,!\,(c-b-1)\,!}$$

73. Proposed by CHARLES E. MYERS, Canton, Ohio.

In an ice cream freezer, cream of a homogeneous character and at the uniform temperature of 60° Fahrenheit is put into a cylinder having a closed base, and the whole put into a freezing mixture so as to subject the base and convex surface to a constant temperature of 30° Fahrenheit. Required the temperature at any point within the cream after the expiration of a given time. [From *Higher Mathematics.*]

74. Proposed by S HART WRIGHT, M. D., A. M., Ph. D., Penn Yan, N. Y.

The longest diameter of a horizontal ellipse is $CB=2a=6$ feet. Its shortest diameter is $EF=2b=4$ feet, their intersection being at $D$. Find in an indefinite vertical plane passing through $CB$, a point $A$ 5 feet$=c$ from $D$, the ellipse being seen from $A$ as a circle.

*** Solutions of these problems should be sent to J. M. Colaw, not later than March 10.

# EDITORIALS.

Dr. Robert J. Aley, of the University of Indiana, has been elected to membership in the *Deutsche Mathematiker-Vereinigung*, and also in the *London Mathematical Society.*

This issue has been somewhat delayed by the illness of the editor. We shall make strenuous efforts to have all subsequent numbers reach our subscribers by the last of each month.

We are following our previous plan of sending out the January number to each of our old subscribers. Any one wishing to discontinue should return this number with his name and address legibly written on the wrapper.

Contributors should observe the following in sending in contributions: 1. Write only on one side of the paper; 2. Sign your name and address to each contribution; 3. In contributing problems or solutions, sign your name to

each problem or solution, and let each problem or solution be on a separate sheet of paper. By observing these directions, your contributions will often be saved from the waste basket.

## *BOOKS AND PERIODICALS.*

*A Text-Book of Statics.* By William Briggs, M. A., LL. B., F. R. A. S., General Editor of the Tutorial Series, Principal of University Correspondence College ; and G. H. Bryan, M. A., Smith's Prizeman, Fellow St. Peter's College, Cambridge. 8vo. Cloth, 220 pages. Price, 3*s*. 6*d*. New York : Hinds & Noble, Publishers.

This little work presents in a very excellent manner all the facts and principles in Statics that can be mastered by a student in under graduate work. All principles are clearly presented and illustrated by excellent diagrams. Many illustrative problems are solved and many problems are inserted at the end of each chapter. B. F. F.

*Elements of Trigonometry, Plane and Spherical.* By Andrew W. Phillips, Ph. D., and Wendell M. Strong, Ph. D., Yale University. 8vo. Cloth, 138 pages. Price, 90 cents. New York : Harper & Brothers.

This work, in addition to the usual matter treated, contains several features which are entirely distinctive: First, in Spherical Trigonometry, we have the photographic reproduction of models used in Yale University. These are beautiful in themselves and add a charm to the book only equaled by that of the Elements of Geometry by Professors Phillips and Fisher. Second, the graphic representation of the Trigonometric and Inverse Trigonometric Functions. Third, the brief treatment of Plane, Spherical and Pseudo-Spherical Trigonometries. In this treatment it is pointed out that Plane Trigonometry is a special case of Spherical Trigonometry, or better, is the limiting case of Spherical Trigonometry and Pseudo-Spherical Trigonometry. This discussion might have been enlarged upon to advantage, but not, however, without the use of some principles of the Calculus.

The printed page does not have the artistic appearance which the work deserves, it presenting the appearance of being printed from old type. B. F. F.

*On the Study and Difficulties of Mathematics.* By Augustus De Morgan. New Edition. 8vo. Cloth, 288 pages. Price, $1.00. Chicago : The Open Court Publishing Co.

This work is of special interest to all teachers of students of mathematics. In it are explained all the difficulties that arise in the study of elementary mathematics, making it possible for the student to master the first principles of mathematics in a way that will make the study of higher mathematics a joy forever, in that he will not need to continually return to unlearn principles taught him in the elements. The chapter on Arithmetical Fractions should be read several times, as it makes very clear what has been a necessity in the development and progress of mathematics, viz., the carrying of terms in that which is simple to that which is complex, and enlarging their meaning as our ideas enlarge. A failure to grasp this important principle has led to endless and useless discussions; as, for example, whether 3 and $3\sqrt{-1}$ are numbers.

The whole work bears the impress of its author's genius. It is a notable instance of a mathematician of eminent mathematical attainment setting himself the task of ridding